INSTRUCTIONS

TORQUE VALUES
MEDIUM CARBON AND ALLOY STEEL BOLTS

Use the torque values in the table as a guide to insure satisfactory tightening of the bolts, studs, and their nuts where a specific value is NOT given in the DATA section of the instructions or on a maintenance data plate on the equipment part being maintained.

BOLT DIAMETER	THREADS PER INCH	TORQUE VALUES* MEDIUM CARBON (SAE GRADE 5) Lb.-Ft.	N·m	ALLOY STEEL (SAE GRADE 8)** Lb.-Ft.	N·m
1/4	20	5-8	7-11	10-12	14-16
	28	5-8	7-11	10-12	14-16
5/16	18	12-15	16-20	18-21	24-28
	24	12-15	16-20	20-23	27-31
3/8	16	20-25	27-34	30-36	41-49
	24	25-28	34-38	34-40	46-54
7/16	14	35-40	47-54	50-56	68-76
	20	40-45	54-61	60-65	81-88
1/2	13	55-60	75-81	80-90	108-122
	20	60-70	81-95	95-105	129-142
9/16	12	75-80	102-108	110-123	149-167
	18	90-100	122-136	130-145	176-197
5/8	11	105-115	142-156	152-169	206-229
	18	125-140	169-190	185-205	251-278
3/4	10	185-205	251-278	285-315	386-427
	16	220-245	298-332	340-370	461-502
7/8	9	300-330	407-447	440-490	597-664
	14	340-380	461-515	510-565	691-766
1	8	440-490	597-664	685-735	929-997
	12	530-570	719-773	790-865	1071-1173
1-1/8	7	620-690	841-936	935-1040	1268-1410
	12	750-830	1017-1125	1115-1240	1512-1681
1-1/4	7	890-990	1206-1342	1250-1360	1695-1844
	12	1040-1160	1410-1573	1600-1750	2169-2373
1-3/8	6	1160-1290	1573-1749	1745-1940	2366-2630
	12	1420-1580	1925-2142	2125-2360	2881-3200
1-1/2	6	1570-1740	2129-2359	2300-2600	3118-3525
	12	1800-2000	2440-2712	2600-3020	3525-4095

*Read information on back before using these tables.
**Includes socket head capscrews.

CONTINUED . . .

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

Verify numbers for parts, tools, or material by using the Renewal Parts or Tool Catalogs, or contact your General Electric representative for assistance. Do not order from this publication.

Bolt Identification

Bolts may be identified in the following manner:

MEDIUM CARBON STEEL:

Three radial dashes on head

ALLOY STEEL:

Six radial dashes on head

or "X" stamped on head

Lubrication

To get maximum benefit from applied torque, the threads and the underside of the bolt head should be clean from dirt, rust areas, and scale from heat treating.

Bolts should be lubricated with a high-pressure lubricant such as graphite in oil or white lead in oil (mixed approximately five parts machine oil to one part graphite or white lead, by volume.) Lubriplate* (Part 147X1614), Molykote** (Part 147X1143), Dag 210*** (Part 147X1613), or anti-seize compound (Part 147X1640) may also be used. Always lubricate both the threads and washer face of bolts and nuts.

NOTE: *Hardened, flat washers are recommended for medium carbon bolts and are mandatory for alloy steel bolt applications.*

Non-Steel Applications

When aluminum, copper or other soft metals are being bolted together, care must be taken to use larger washers, smaller bolts, or lower torques in order to prevent deformation of the softer materials. The softer metals also have more of a tendency to relax with time; retorquing at least once is recommended.

If using an extension on the torque wrench, refer to GEI-81913 under Tab RM-4, "Torque Wrench Applications". When fastening power cables, see GEI-73235 under Tab RE-6, "Power Cable Terminal Application and Connection".

CAUTION: *The Torque value table gives approximate maximum and minimum values that should be applied to the bolts of the size and material indicated. These values take only bolt strength into consideration and are applicable for steel-to-steel joints. When material is softer than steel, such as brass, aluminum, plastic, etc., thread stripping is a possibility if the table values of torque are used. These values may also be excessive for many gasketed joints, since extrusion of the gasket may result.*

Also consider the following when using the tables:

1. *Torque wrenches are a possible source of error and should be checked often. If out of calibration more than ± 5%, they should be adjusted.*
2. *Dry (unlubricated) assemblies of bolts and nuts may require up to 20% additional torque. If threads are not clean, the values may be higher yet.*
3. *Well-rolled and lubricated bolts going into smooth threads in a tapped hole could require as much as 20% less torque than that shown in the table. Cadmium plating will also reduce the charted torque.*

*Product of Fiske Bros. Refining Co., Newark, N.J.
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***Acheson Colloids Co., Port Huron, Mich.